

Chapter 3

Leaking Underground Storage Tank Program

3.0 Introduction

Overview of Chapter 3

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In July 1993, the Office of Environmental Response, Underground Storage Tank (UST) Branch, published the [Underground Storage Tank Branch Guidance Manual](#). This manual provided extensive guidance for regulated USTs, including guidance on initial notification, UST removal, release reporting, site characterization, corrective action, Excess Liability Trust Fund ([ELTF](#)) reimbursement, and closure. This was a major step in providing the regulated community with information about IDEM requirements for regulated USTs. In addition, The UST Branch started outreach seminars to help the regulated community and their consultants. In October 1994, a revised and improved version of the UST Branch Guidance Manual was published. This chapter replaces the LUST portion of the 1994 guidance manual. The following is a brief description of each section of Chapter 3.

[Section 3.1](#) presents a brief overview of the steps involved in taking a LUST site from release notification to closure. The text contains numerous references to other chapters in the User's Guide, the RISC Technical Guide, and other sections within this chapter for more detailed information on specific topics.

[Section 3.2](#) provides an update on initial incident reporting. Most of the information is similar to information in the October 1994 [Underground Storage Tank Branch Guidance Manual](#). Clarification is provided with respect to different procedures for handling suspected and confirmed releases.

[Section 3.3](#) discusses site prioritization and reprioritization. The site prioritization information has been updated to reflect RISC guidance. In the past, releases initially reported as low or medium priority later proved to be higher priority, but information regarding this change was not clearly communicated to IDEM. This section stresses the need for communication from the owner or operator regarding updating site prioritization.

[Section 3.4](#) provides guidance on 20-day abatement and free product removal reporting. The 20-day abatement reports are only required for releases that pose acute or immediate hazards.

[Section 3.5](#) provides LUST site investigation guidance, including departures from RISC guidance. These departures include automotive waste oil chemicals of concern ([COCs](#)), petroleum subsurface soil

characterization procedures for in-place USTs, and laboratory data submission requirements. The laboratory data submission requirements are a replacement for quality assurance project plans ([QAPP](#)) for sites that use default characterization and closure procedures.

[Section 3.6](#) covers corrective action plans ([CAPs](#)), including a general discussion of evaluation criteria for different remedial options and public notification for LUST sites. Public notification requirements have not changed since publication of the October 1994 guidance.

[Section 3.7](#) provides guidance on land treatment of petroleum-impacted soil. For land treatment requests, additional information on potential impact on ecological receptors is now required. In addition, analytical requirements now reflect the change from total petroleum hydrocarbons (TPHs) to COCs.

[Section 3.8](#) provides site-specific criteria that trigger quarterly reporting. The criteria are presented in more detail than in the 1994 UST Section Guidance Manual. Also, note that the quarterly reporting time frames have changed.

[Section 3.9](#) provides information on LUST-specific closure issues. The No Further Action (NFA) letter continues to be used to document closure.

[Section 3.10](#) provides web links to various sites for supplemental LUST information. Included is a link to IDEM's UST Section guidance, which has been updated to reference current UST rules. Elements of RISC, such as petroleum COCs, will be considered for UST rules and guidance at a later date. UST guidance can also be obtained by contacting the UST Section at (317) 308-3064. LUST guidance can be obtained by contacting the LUST Section at (317) 232-8900.

[Section 3.11](#) presents updated ELTF guidance. Guidance at this time does not include an application. An electronic version should be available on the web some time in the future. Section 3.11 does, however, explain how RISC policies will impact reimbursement.

Process for LUST Sites

- h** Release Reporting
- h** Site Characterization
- h** Soil Characterization
- h** Ground Water
Characterization
- h** Closure

3.1 Process for LUST Sites

In the past, the LUST Section had only overseen releases from [regulated USTs](#). The Section's responsibilities have been expanded to include releases from [unregulated USTs](#) that have not stored product since January 1, 1974. Unregulated UST sites must be closed following the same guidance used to close regulated UST sites with

regard to reporting, investigation, and closure. Common unregulated USTs include heating oil USTs for on-site use. Questions about regulated and unregulated USTs should be directed to the UST Section. A brief outline of the closure process for LUST sites is provided below.

3.1.1 Release Reporting

Initial incident reporting is the first step in the process and is discussed in Section 3.2. Most important is an accurate prioritization of the site. Acute hazards and conditions are key concerns that should be focused on when sites are evaluated. The user should have a thorough understanding of how these concerns affect site characterization. Section 2.3 in the RISC Technical Guide (Identifying Acute Hazards) discusses these concerns. Additional information is presented in several chapters of the RISC Technical Guide, including Chapter 2 (Presampling Activities), Chapter 7 (Nondefault), and Chapter 5 (Susceptible Areas). Information requested in the presampling chapter is a starting point for developing the conceptual site model (CSM). The nondefault and susceptible area chapters give guidance on nondefault procedures.

If an acute or immediate hazard is detected at the site, immediate response is triggered to mitigate the hazard, and submittal of a 20-day abatement report (see [Appendix 3.2](#) of the User's Guide) is required. [Section 3.3](#) provides more information on acute and immediate hazards. Only sites having acute hazards require the submission of a 20-day abatement report. If free product is encountered, a free product removal report (see Appendix 3.2 of the User's Guide) must be submitted within 45 days of discovery. [Section 3.4](#) provides more information on the 20-day abatement and free product removal reports.

3.1.2 Site Characterization

The next step in the RISC process is site characterization. The goal of site characterization is to define the extent of contamination and evaluate potential receptors. An initial site investigation report, which is due following the format outlined in [Appendix 1.1](#) of the User's Guide must be submitted to the LUST Section within 45 days from the date of the release. Information in the report is the basis for the CSM. LUST-specific guidance on site characterization is included in [Section 3.5](#) of this User's Guide.

3.1.3 Soil Characterization

How soil characterization is performed depends on several factors. When the USTs are in place, the user should follow the guidance in

Section 3.5.4, but if the USTs have been removed, the user should follow the guidance in [Appendix 4](#) (Petroleum Guidance) of the User's Guide. When either the UST vault or source area exceeds 0.5 acre, the nondefault, large source-size characterization in [Chapter 7](#) of the RISC Technical Guide is applicable. The user should be aware that if the site must move into nondefault status based on a limiting condition (such as bedrock or ecological impact conditions), the investigation may proceed differently than it would under default closure status.

Releases around pump islands and lines should be characterized following the same guidance as for LUSTs. Generally, four soil borings should be sampled around the suspected release area and continue outward until sampling results do not exceed resident closure levels. Source removal rather than characterization is an option, but approval will be made on a site-by-site basis.

Soil characterization results will be used to determine potential exposure concentrations (PECs). If the PECs are less than default closure levels, no further action is required for soil. If a PEC exceeds a default closure level, a CAP is required for site closure (see Section 3.9). The user should be aware that samples from the [smear zone](#) are not used in determining the PEC, (see the environmental media definitions in Section 3.3.1 of the RISC Technical Guide). Section 3.5.4 provides a more detailed discussion of subsurface characterization and PECs.

Upon completion of the soil characterization process, the site should be re-evaluated to determine if it needs reprioritization.

3.1.4 Ground Water Characterization

Ground water screening should be conducted at the same time as soil characterization to determine whether ground water has been impacted. An exception is when ground water is known to be contaminated prior to soil characterization. This may be the case at sites where past site work has been conducted. In either situation, once a determination has been made that the ground water has been impacted, the extent of the ground water contamination must be determined.

A ground water screening waiver can be granted by the LUST Section if the release has had minimal impact on soil (see Section 3.5.2). If ground water contamination is detected at concentrations exceeding the estimated quantitation limits (EQLs), a nature and extent determination is required. Ground water sampling from the source area outward may be useful for determining locations for plume stability wells and to evaluate the presence of free product in the

source area. After the nature and extent determination, the site should be re-evaluated to determine if nondefault conditions exist or if the site needs reprioritization.

Ground water samples obtained through push probe sampling are acceptable for screening and nature and extent determination. Once the extent of ground water contamination is defined, the user should evaluate the concentrations with respect to land use and control of the properties affected. If concentrations are at or below residential closure levels, the user can proceed straight to closure as discussed in [Chapter 6](#) of the RISC Technical Guide. If the concentrations are at or below industrial closure levels for an industrial use property and property control has been demonstrated, the user can proceed straight to permanent closure. However, an environmental notice for land and ground water use must be provided (see [Appendix 5](#) of the RISC Technical Guide).

3.1.5 Closure

Most options for nondefault closure require the submittal of a CAP. If closure with institutional controls is selected, the institutional control should be in place prior to CAP approval (see Appendix 5 of the RISC Technical Guide). IDEM will review CAPs that do not include proof of institutional controls and will provide a remedy approval letter that approves the closure with institutional controls approach. CAP approval will follow once proof is provided that institutional control has been obtained. For this reason, once it is evident that a ground water plume is present off site, the process of obtaining an institutional control should begin so that CAP approval is not delayed.

Several options are available for soil closure, including the following:

- Using the 0.25-acre source size closure levels
- Remediating to default closure levels
- Using site-specific data in default equations to calculate nondefault closure levels
- Eliminating an exposure pathway, such as the direct soil pathway
- Performing other nondefault assessments as described in Chapter 7 of the Technical Guide

- Remediating soil to 100 parts per million (ppm) TPH concentration, (or higher), will be considered as a nondefault approach. Note: this does not apply to sites closing using 1994 guidance.

[Chapter 7](#) in the RISC Technical Guide discuss nondefault closure options in detail.

If the site is not eligible to proceed straight to closure of ground water, the user can either remediate to closure levels, initiate closure with institutional controls, or perform a nondefault assessment. Some key issues in evaluating ground water closure options are property control, potential for the plume to be expanding, and levels of contamination. A plume stability demonstration cannot proceed until the free product at the site has been removed to the maximum extent practical. It may be practical to treat commingled plumes as one plume regardless of whether the plumes originated from different facilities.

If remediation is chosen, once the remedial goals have been reached, the site can proceed to closure as discussed in [Chapter 6](#) of the RISC Technical Guide. Closure goals can be cleanup to residential or industrial levels, or shrinking the plume to the area of property control and then initiating closure with institutional controls. Other nondefault options may be considered. However, they require a higher level of supportive data to assure they are protective of human health and the environment.

If demonstrating plume stability is an option, the site can proceed to stability monitoring as explained in Chapter 6 and Appendix 3 of the RISC Technical Guide. If the site undergoes eight quarters of stability monitoring and demonstrates a stable or shrinking plume, it can proceed to closure by monitoring for the next 5 years. For petroleum-contaminated sites, closure can be achieved with attenuation modeling in as little as 1 additional year after the initial eight quarters of stability monitoring are completed. If closure cannot be achieved through the attenuation modeling option, the site can still close if 7 years of quarterly monitoring (2 years initial plus another 5 years) show no increase in contaminant plume size or concentration. Other options are available for nondefault closure, in addition to the default options discussed above. Again, nondefault closure options may require a higher level of supportive data to substantiate the proposed nondefault closure.

Quarterly reports should be submitted for sites that (1) have acute conditions (LUST high-priority sites), (2) are undergoing active remediation (including landfarming), or (3) are performing quarterly monitoring for ground water closure. More information on quarterly

reports is presented in [Section 3.7](#) (Land Treatment) and [Section 3.8](#) (Quarterly Reporting) of the User's Guide.

3.2 Initial Incident Reporting

There are three basic release situations: emergency conditions, confirmed releases, and suspected releases. Incident reporting to IDEM is required for all confirmed and suspected releases. A copy of the incident report facsimile form is provided in [Appendix 3.1](#). Copies of this document and others can also be obtained at the following LUST Internet link:

<http://www.state.in/us/idem/olq/programs/lust/index.html>

3.2.1 Emergency Conditions

If emergency conditions exist (inhabitable building affected, drinking water affected, utility conduits affected, or free product present), initial reporting must be made within 2 hours in accordance with 327 IAC 2-6.1. The report must be filed by calling (888) 233-7745 (in-state 24-hour emergency response telephone number) or (317) 233-7745 (for out-of-state reporting). Acute hazard mitigation is reimbursable by the ELTF.

3.2.2 Confirmed Releases

A confirmed release must be reported to IDEM within 24 hours by either:

- Calling (317) 232-8900 or, for in-state, 1-800-451-6027 (extension 232-8900) or
- Sending a facsimile to either (317) 234-0428 (primary number) or (317) 234-3403 (secondary number)

Reportable minimum analytical requirements for LUSTs are the detection limits presented in Table 4.1-1 in Appendix 4.1 of this User's Guide. However, when obvious visual or olfactory signs of contamination are present release notification should not be delayed by waiting for laboratory confirmation.

Confirmed release reports should include information specified in Parts A and B of the release reporting information provided in Section 3.2.4, below.

3.2.3 Suspected Releases

Suspected releases are recognized by the following:

- Erratic behavior of product-dispensing equipment
- Sudden loss of product through inventory control checks
- Tank tightness test failure (Two consecutive failed tank tightness tests is considered a confirmed release.)
- Water present in UST
- Free product present
- Vapors in basements, buildings, or nearby utility conduits

Suspected release reports should include the information discussed below under Section 3.2.4, Release Reporting, Part A. Owners and operators of UST systems in question must report a suspected release to IDEM within 24 hours by telephone or fax at the numbers given in Section 3.2.2. Owners and operators have 7 days to either negate or confirm suspected release reports by either facsimile or mail to the following address:

Indiana Department of Environmental Management
Leaking UST Section
100 North Senate Avenue
P.O. Box 7015
Indianapolis, IN 46207-7015

If IDEM does not receive written documentation within 7 days from the suspected release report date, an incident number will be assigned.

3.2.4 Release Reporting

Reporting information requirements for suspected and confirmed releases are summarized below.

Part A (Both suspected and confirmed releases)

1. Site name, address, contact person and telephone number, and UST facility identification number
2. UST system size and products contained
3. Owner or operator name, address, and telephone number

4. Reason(s) for suspecting a release
5. Future investigative steps

Part B (Confirmed releases)

6. Location of release (piping lines, dispensing island, USTs, joint connections, etc.)
7. Knowledge of release (failed tank tightness test, analytical results, catastrophic spill, etc.)
8. Affected area(s) (backfill, natural soil, ground water, utility lines, basements, etc.)
9. Site-specific information (affected utility conduits, drinking water intakes, or detection of free product)

Upon receipt of an initial incident report, IDEM will assign an incident number. This number and the UST facility identification number should appear on all future correspondence to IDEM. Failure to include these numbers may delay document review.

3.3 Site Prioritization

After initial incident reporting, the LUST site is prioritized. Site prioritization is based on the most appropriate site information typically available during initial LUST reporting. However, if site conditions change, the site priority could also change.

High-priority LUST sites are defined as sites with actual or potential receptor impacts that threaten human health or the environment through one or more of the following:

- Inhabitable buildings with vapors
- Drinking water
- Utility conduits
- Ecologically susceptible area
- Free product present
- Ground water impact within a 1-year time of travel to a locally designated wellhead protection area or within 1,500 feet of a public water supply well

Staff will be assigned to all high-priority sites.

Medium-priority LUST sites are defined as sites where ground water has been impacted, but no imminent threat to human health or the environment exists. The potential for receptor impact will be evaluated for medium-priority sites, and LUST Section staff will be assigned to medium-priority sites as needed.

Low-priority LUST sites are limited to sites where soil is impacted but a ground water impact is not present or is unproven.

Factors used to rank sites within each priority category include the following:

- Type of petroleum product released
- Predominant soil type in the area
- Ground water flow direction and velocity

At times, site reprioritization may be necessary. For example, during tank removal, initial indications may show that only soil has been impacted. However, further investigation may indicate ground water impact as well. In this case, a site is reprioritized from low to medium priority. If a site requires higher prioritization, the owner or operator must notify IDEM within 24 hours of discovery.

3.4 20-Day Abatement and Free Product Removal Reporting

One or more of the following conditions at LUST sites warrant immediate corrective action or mitigation:

- Presence of free product¹
- Presence of explosive vapors in utilities conduits or inhabitable buildings
- Contamination of a drinking water supply at levels that exceed residential default closure levels

¹ Free product removal must be maintained and reflected on the [Corrective Action Progress Report Form](#), which is submitted at least quarterly. Free product is defined in [329 IAC 9-1-23](#) as a “regulated substance that is present as a nonaqueous phase liquid, for example, liquid not dissolved in water.”

Any one of these conditions requires that the owner or operator submit a 20-day abatement report to IDEM (at the address given in Section 3.2.3) within 20 days from the date of incident knowledge (see [Appendix 3.2](#) of this User's Guide).

If free product is detected during UST closure or characterization activities, a free product removal report (see [Appendix 3.3](#) of this User's Guide) must be submitted within 45 days of the discovery of free product or at a time specified by IDEM.

3.5 LUST Site Investigation

A source area investigation must be conducted at all sites where soil or ground water contamination is suspected. One copy of the LUST site investigation report must be submitted to IDEM (at the address given in Section 3.2.3) within 45 days of initial notification. Three additional copies are required for sites with an assigned IDEM project manager, (all high priority and some medium priority sites). The site investigation report must follow the format presented in [Appendix 1.1](#) of the User's Guide. The information required in the report guidance is similar to the CSM discussed in the RISC Technical Guide. All requirements of [329 IAC 9-5-4.1, 5.1, and 6](#), and [40 CFR Parts 280.62 through 280.65](#), must be met, in addition to the guidelines presented in this User's Guide and the RISC Technical Guide.

The goal of the site investigation is to define the nature and extent of soil and ground water contamination. Both media should be defined as contaminated if sampling results exceed residential closure levels horizontally and vertically. Even if ground water concentrations encountered during screening are less than default residential closure levels, the extent of ground water contamination must be determined in all directions.

LUST site investigation activities for petroleum and chemical USTs; default guidance; petroleum COCs; subsurface petroleum characterization for in-place USTs, product lines, and pump islands; QAPPs; and data submission requirements are discussed below.

3.5.1 Petroleum and Chemical USTs

Most USTs contain petroleum hydrocarbon products. Therefore, most of the guidance provided concerns the typical petroleum LUST site: COCs, subsurface soil characterization, and attenuation modeling for closure of petroleum hydrocarbon-contaminated ground water sites.

Petroleum LUST guidance is also applicable to releases from nonpetroleum USTs except that (1) ground water closure cannot be attained through use of attenuation modeling and (2) the data quality objective (DQO) process and QAPPs are applicable during site characterization and closure. Sites regulated under the Resource Conservation and Recovery Act (RCRA) must be closed following RCRA guidance. Section 3.5.4 and the RISC Technical Guide present more information on DQOs and QAPPs.

3.5.2 Nondefault Guidance

Most of the guidance presented in the RISC Technical Guide contains default procedures for area screening and characterization. Nondefault options are available for conducting site activities also. One example of a nondefault procedure is the characterization of a source area greater than 0.5 acre, such as a very large UST tank farm.

Although area screening for soil is an option, its use at UST sites is minimal. Most LUST release locations are usually known or can be determined through minimal characterization effort. The use of nondefault soil area screening or characterization methods may require the development of a QAPP. Additional information on QAPPs is presented in [Chapter 6](#) of the RISC Technical Guide.

For typical LUST releases, the main media of concern are subsurface soil and ground water. Even though releases occur below surface soil, the direct exposure pathway still needs to be evaluated unless this pathway can be eliminated. This does not apply to surface spills, which are not regulated by the LUST Section but fall under the spill rule ([327 IAC 2-6.1](#)) and are reported to the Emergency Response Section.

When source removal is an option, the vertical extent of contamination must be removed to the land use specific closure level. The minimum number of samples and sampling locations will be determined based on evaluation of site investigation data.

The normal ground water screening may not be necessary in some circumstances. For example, if a line leak has been detected and repaired, and a minor amount of contaminated soil was removed to residential default closure levels (confirmed through laboratory analysis), decisions about screening the ground water may not be necessary. Decisions on these issues will be made on a site-by-site basis.

Ground water must be screened unless a request for a waiver is submitted and approved by IDEM. Factors to consider may include contact with ground water of soil contaminated above the EQLs, estimated product loss, soil type, and amount of contaminated soil removed. The waiver provides documentation that supports a decision not to screen ground water.

3.5.3 Petroleum COCs

The three classes of petroleum hydrocarbons for which standard COCs have been determined are gasoline, high-end liquid hydrocarbon fuels, and hydrocarbon oil. [Appendix 4.1](#) of the User's Guide lists the COCs by the three classes.

A fourth class of petroleum hydrocarbon COCs, waste motor oil, has been established for USTs. Waste motor oil is composed of nonspecific petroleum hydrocarbons designated for disposal or recycling. The following guidance applies when a release has occurred from a waste motor oil UST and excavation is chosen as a remedial option. In other words, the user would follow current UST rules and analyze samples for TPHs using Method 418.1, "Methods for Chemical Analysis of Water and Wastes". If more than 100 ppm TPH is present, then analysis of the waste oil constituents will be necessary. The following change in analytical methods does not apply to sampling at UST closures but only to remedial action. If remedial action is necessary, the gas chromatography/flame ionization detector (GC/FID) using the California modification to Method 8015, (TPH-8015) can be used to determine if all petroleum-impacted soil has been removed. This does not apply to the modified closure option in the UST rules but only to sites with CAPs that propose this option to the LUST Section.

The soil cleanup level for waste motor oil is 100 ppm TPHs as determined by SW-846 8015. This analytical methodology allows for identification of the specific range of carbon numbers and thus the likely product types that the soil contamination resembles (such as gasoline, diesel, or motor oil). If the analysis identifies the contaminant as "motor oil" or hydrocarbon oil, the waste motor oil COC standard of 100 ppm TPHs is applicable. If analytical results indicate that the contamination resembles a different petroleum hydrocarbon (such as diesel), the high-end liquid hydrocarbon fuel COCs would be used. Similarly, for gasoline range hydrocarbons, the gasoline COCs should be used (see Appendix 4.1 of the User's Guide). The presence of a contaminant identified as gasoline or a high-end liquid hydrocarbon fuel will require ground water screening. If an oil-range hydrocarbon is identified, no ground water screening is required.

During excavation, soil should also be field screened for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID) or a flame ionization detector (FID). PID results should demonstrate that the extent of VOCs in the soil has been defined and, thus, removed or that VOCs are absent, entirely.

Some petroleum hydrocarbon products do not have standardized COCs. Contaminants are determined on a site-by-site basis for these chemicals. These sites require a complete and detailed QAPP to identify the COCs. All parts of the QAPP must be completed, including DQOs, a health and safety plan, a sampling and analysis plan, and a data quality assessment. Additional information on QAPPs is presented in both the RISC Technical Guide and this User's Guide (see [Section 3.5.5](#)). Guidance on acceptable analytical methods for appropriate EQLs is provided in [Appendix 2](#) of the RISC Technical Guide. OLQ's Chemistry Section may be contacted at (317) 232-3215 for information regarding analytical requirements for other chemicals. Contact the LUST Section for other approved analytical methods.

3.5.4 Subsurface Petroleum Characterization for In-Place USTs, Product Lines, and Pump Islands

As discussed in [Appendix 4.2](#) of the User's Guide, subsurface petroleum characterization guidance requires a boring in the center of the suspected area of contamination. Although this guidance works for sites where USTs have been removed, drilling a soil boring inside the center of a UST vault is not reasonable when USTs are present. This guidance presents an alternative subsurface soil characterization method for use whenever USTs, product lines, or pump islands remain in place.

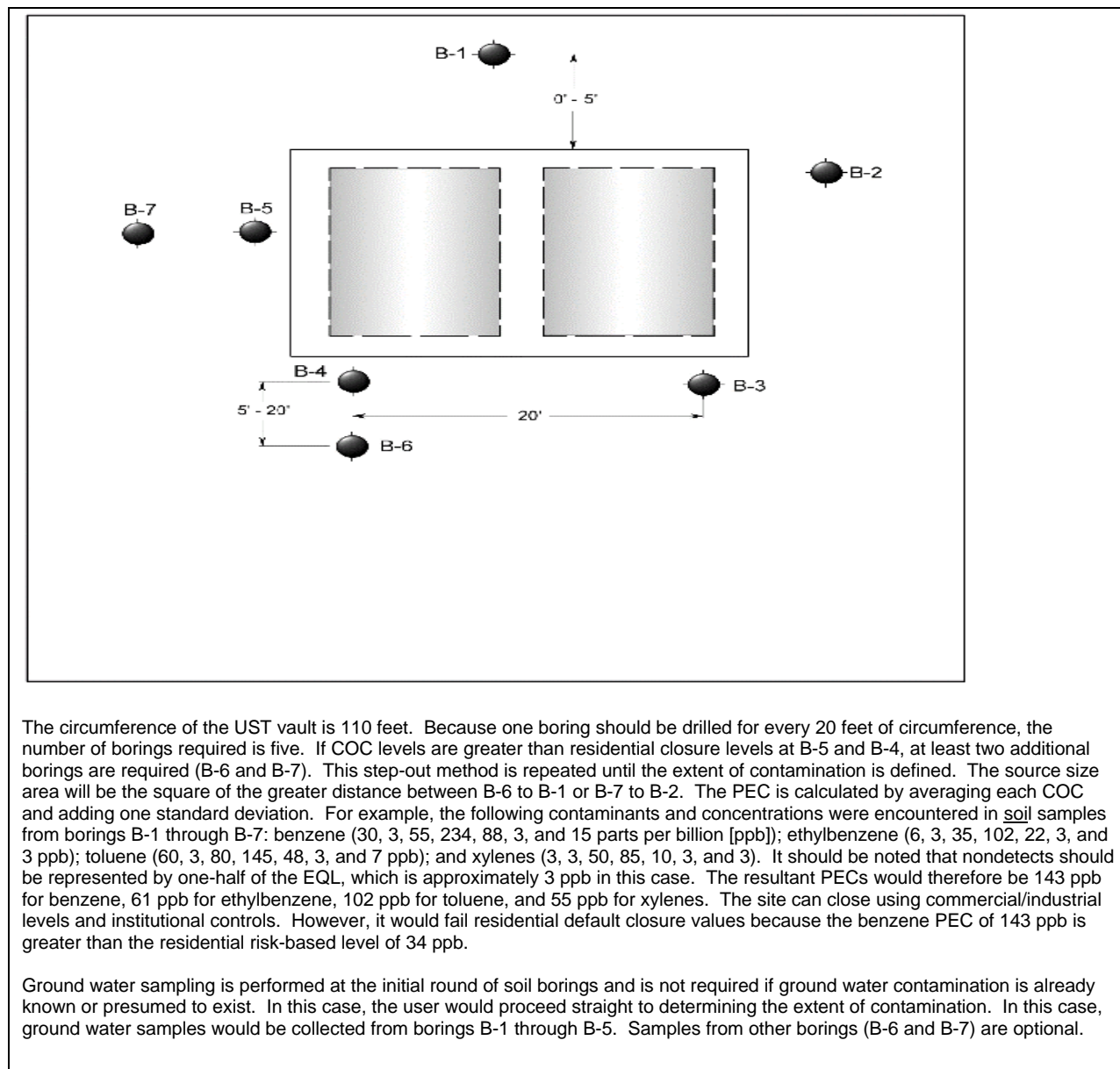
The investigation consists of drilling one soil boring for every 20 feet of circumference around the UST vault, with a minimum of four borings. For example, a UST vault with a 110-foot circumference would require five borings. An illustration of the sampling locations is shown in Figure 3-1. This method is consistent with guidelines for in-place closure. The borings should be drilled within 5 feet of an UST, pump island, or product lines. The goal of the investigation is to determine the extent of soil contamination at levels exceeding the residential default closure levels for COCs.

Additional soil borings should be drilled in four general directions (not necessarily along north-south or east-west transects) starting where it is suspected or known that the release occurred. The soil borings should be drilled at 5 to 20-foot intervals out from the release area.

The results of this assessment plan are two transects that cross at the release point and are used to calculate the size of the source area. Latitude on placement is permissible to allow for above ground and underground obstacles. Soil sample results from these borings and from other previously drilled borings are used to calculate the PEC. The PEC is then compared to the land-use default closure levels. If the PEC is less than the closure levels, no further action is required for soil.

The default characterization for pump islands and product lines is performed by drilling four borings around the release location, performing the stepouts (if needed), and calculating the PEC. Characterization for pump islands and product lines would be required only when relatively large releases have occurred and may not require the same amount of effort described above for USTs. Removal of contaminated soil without characterization is an economical option for relatively small sources (see [Section 3.5.2](#)). However, alternative nondefault characterization options can also be considered.

Figure 3-1: Illustration of Sampling Locations



Petroleum guidance also requires that a ground water sample be collected from the center boring. For in-place USTs, product lines, and pump islands, the center of the source area may not be readily accessible. In this case, ground water samples should be collected from all initial borings around the source area (see [Figure 3-1](#)).

3.5.5 QAPPs

A QAPP is a complete and detailed description of where, how, what type, and how many samples will be collected. It incorporates all the information needed to generate usable data. It provides a detailed description of all activities, quality specifications, and precautions associated with sample collection, handling, and analysis.

Because DQOs have been incorporated into much of the petroleum guidance, formal QAPP development is not necessary in many circumstances. QAPP development is appropriate in the situations below.

- Petroleum products which do not have standardized COCs. Therefore, the COCs must be developed.
- Nondefault screening and characterization methods are used.
- Nondefault closure sampling is performed.

Additional information on QAPPs is provided in Section 6 of the RISC Technical Guide.

3.5.6 Data Submission Requirements

Data quality assessment and quality assurance/quality control (QA/QC) requirements have not changed from previous LUST guidance. Persons other than environmental contractors or consultants who gather environmental samples should also follow specific laboratory requirements as applicable to ensure the validity of sample results. These requirements should cover sample acquisitions, containers, preservation, shipping requirements, holding times, storage, chain of custody, and decontamination of equipment between samples.

QA/QC information should be kept by the laboratory and provided to IDEM, if requested. Two samples (duplicates) should be collected, one for field screening and one for laboratory analysis. Samples used for field screening should not be sent to the laboratory for analysis.

Proper sampling and laboratory analysis are required to verify site conditions. Sampling and analysis methods must be consistent with guidance provided in U.S. Environmental Protection Agency (U.S. EPA) publication SW-846, “Test Methods for Evaluating Solid Wastes, Physical and Chemical Methods,” Third Edition. QA/QC procedures outlined in the methods must be followed and the documentation should be available for submission to IDEM upon request.

Sample information that must be included is as follows:

- A QA/QC package containing a signed Laboratory Certificate of Analysis listing analytical methods, preparation methods, dates of sample receipt analysis; and a statement that the method QA/QC procedures were followed
- Chain of custody documentation, including laboratory receipts
- Decontamination procedures
- Sampling procedures and techniques

Any questions regarding sample handling and analysis should be directed to OLQ’s Chemistry Section at (317) 232-3215.

Site investigation reports must be prepared following the guidance presented in [Appendix 1.1](#) of this User’s Guide. The only exceptions to the guidance are the development of the site-specific QAPP and the sampling and analysis plan.

3.6 Corrective Action Plans

There are two closure options for corrective action, closure without institutional controls and closure with institutional controls. Institutional controls are utilized to restrict access to media that contain contaminant concentrations in excess of residential exposure levels. Examples of institutional controls are restricting land use to industrial purposes or prohibiting the use of the ground water for potable purposes. Closure without institutional controls is applicable to sites where unrestricted exposure to soil and ground water are allowable.

Remedial options can differ for each medium. Thus, even if site characterization demonstrates that no further action is needed for closure without institutional controls for soil, closure with institutional controls may be desirable if the site has a stable ground water plume.

The CAP differs depending on which remedy option is selected and whether active remediation is used to achieve cleanup goals.. Sites that demonstrate compliance with closure levels during characterization can include CAP information in the site investigation report. Sites where remediation is conducted to attain closure must also demonstrate that the selected remedial technology will be effective.

The CAP summarizes information in the site investigation report for all options and should be submitted to the address given in Section 3.2.3.. Information should be current for items such as quarterly monitoring results, sampling results, and ground water flow maps. The CAP must discuss various available options and provide justification for the closure option selected. Since cost is a factor in approving the corrective action remedy, the justification should include a cost comparison of all closure options.

According to [329 IAC 9-5-8](#), some form of public notification is required for all confirmed releases that require a CAP. The regulation applies to the public directly affected by either the release or by the planned corrective action. The following six options are acceptable forms of public notification:

- Notice in local newspapers
- Block advertisements
- Public service announcements
- Publication in the Indiana Register
- Letters to individual households
- Personal contacts by field staff

All affected parties must be notified consistent with the criteria listed above. In addition, all notification activities must be documented in the CAP.

A CAP will not be considered for review by IDEM unless an adequate site investigation has been completed. Additional details on the format for the site investigation report are presented in Section 3.5 of this User's Guide. At least one copy of the CAP is required for each site. Additional copies may be requested for sites with an assigned IDEM project manager. The ELTF guidance in Section 3.11.4 provides the copy requirements for the CAP.

More information and more justification for proposed remedy options will be required for sites that are high priority or that impact an exposure pathway not considered by the default (such as surface water). These sites will also undergo a higher level of IDEM review.

3.6.1 Closure with Institutional Controls

Closure with institutional controls relies on institutional controls to prevent exposure to contaminated media. The institutional control is usually an environmental notice attached to the deed of the affected property. Prior to CAP approval, a true copy of the recorded environmental notice must be included in the CAP. For CAPs that do not include all necessary environmental notices the LUST Section will review the institutional control remedy and evaluate whether it is acceptable for closure at the site. If acceptable, IDEM will then approve the CAP after receiving proof that the environmental notices have been filed. Additional information on environmental notification and information to include in the notice is presented in the RISC Technical Guide, Appendix 6. The CAP must state that the closure with institutional controls option will be implemented.

When commercial/industrial closure levels are used, a CAP must be submitted with a true copy of the recorded environmental notice for land use. The CAP must state clearly which closure levels are used.

If closure with institutional controls is used for ground water, a plume stability demonstration must be submitted to IDEM. Closure of these sites requires that the plume be stable or decreasing. CAPs can be approved prior to demonstration of plume stability as long as environmental notices prohibiting exposure to the ground water are in place for all affected properties. If it is determined through plume stability tests that the plume is increasing, either remediation must be implemented or, if applicable, a nondefault assessment must be performed. If a plume fails a stability test, IDEM must be notified as soon as possible and an amended CAP must be prepared and submitted. More information on plume stability is presented in Appendix 3 of the RISC Technical Guide.

As indicated above, the information required for CAPs that propose closure with institutional controls depends on whether remediation is necessary to achieve closure goals. For closure with remediation, the CAP should contain all the elements described in the Remediation Work Plan outline presented in [Appendix 1.2](#) of this User's Guide. For closure without remediation, the CAP need not contain discussions on treatability studies, pilot tests, and selected remediation technologies.

3.6.2 Closure without Institutional Controls

As discussed previously, there are two ways to achieve closure without institutional controls. Either the site characterization must demonstrate that contamination is below residential closure levels, or active remediation must reduce contamination to residential closure levels. For closure utilizing remediation, the CAP should contain all the elements described in the Remediation Work Plan outline in [Appendix 1.2](#) of this User's Guide. For closure without remediation, the investigation report can serve as both the CAP and the closure report.

3.7 Land Treatment

Land treatment is a process in which petroleum-contaminated soil is spread on an impermeable barrier to allow contaminants to volatilize and biochemically degrade. It is generally performed on the site where the release occurred. Under certain conditions, off-site treatment is allowed, but only if the owner of the LUST site is also the owner of the proposed off-site treatment property. In all cases, land treatment must be pre-approved by the LUST Section.

This process is cost-effective and decreases contaminant levels and treatment time. The type and level of contamination, as well as soil type, primarily determine the length of time required for remediation. Clay-rich soil binds up contaminants and requires longer remediation time. Short-chain hydrocarbons (such as gasolines) require less time to degrade than long-chain hydrocarbons (such as diesel). For this reason, soil contaminated by automotive waste oil will not be approved for land treatment. It is also important to note that in order for bioremediation to be fully beneficial, the treatment cell location must be available long enough to complete the remediation process.

Many factors can improve the rate of biodegradation. Adjustment of the most limiting factors can increase the rate of biodegradation and shorten remediation time. The most common land treatment option, biostimulation, increases the activity of the indigenous microbial population in the soil by aeration and adding nutrients. In addition, bacteria cultured for specific contaminants can be added (bioaugmentation). Bioaugmentation is useful when indigenous bacteria are not available to degrade organic chemicals, such as for a recent spill. Bacteria need enough time to mutate, acclimate, and increase their population in order to be effective in the degradation process. Some of these factors are briefly discussed in Table 3-1 on the following page. When known, general ranges for optimum bacteria activity are given.

Responsible parties and contractors need to evaluate land treatment options and consider their costs and benefits. An advanced remediation system can be created by conducting pilot studies to determine optimum site-specific conditions for biodegradation, however, the costs of pilot studies and treatment and monitoring may be prohibitive. An IDEM technical evaluation of bioremediation is available at the following Internet address:

<http://www.state.in.us/idem/olq/publications/papers/index.html>.

Call (317) 232-8900 and the LUST Section will send copies of the evaluation

The Office of Air Management may require air emission controls for land treatment. Emission facilities need to be pre-approved and registered if they potentially emit more than the following thresholds:

- 3 pounds of VOCs per hour
- 15 pounds of VOCs per day
- 25 tons of VOCs per year
- 10 tons per year of any one or 25 tons of any combination of the Hazardous Air Pollutants listed in [Section 112b of the Clean Air Act](#).

Land treatment may not be allowed in regions identified as nonattainment areas by IDEM's Office of Air Management. That office can be contacted at (317) 233-5686 for further guidance. In addition, discharges of runoff and treated leachate may require a National Pollutant Discharge Elimination System (NPDES) permit from the Office of Water Management. For more information on NPDES permits, contact the Office of Water Management at (317) 232-8476.

Table 3-1. Biodegradation Factors

Factor	Explanation
Nutrients	Nutrients can be adjusted to make an ideal environment for bacteria to degrade organic contaminants. In order for nutrients to be beneficial, they need to be added in a usable form, at appropriate concentrations, and at proper ratios. Commercial fertilizers and farm manure can be used. Backfill or natural materials from 10 feet or more below the soil surface generally supply little, if any, needed nutrients (organic matter).
Macronutrients	These include nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur. Of these six macronutrients, nitrogen and phosphorus have received the most research attention. Nitrogen and phosphorus are readily available, inexpensive, and easy to apply. Application rates and optimum ranges depend on the site. Nitrogen and phosphorus are usually limiting factors, and their addition should enhance bioactivity. The typical ratio for optimal nutrient addition for carbon-nitrogen-phosphorus is 100:10:1.
Moisture	Microorganisms become dormant at moisture extremes and become active when favorable conditions return. Moisture control is simple: provide drainage within the treatment cell during wet seasons, and add moisture during dry seasons. The optimum range for soil moisture is 20 to 80 percent.
Oxygen	Any movement of the soil expose contaminants to the air increases volatilization and biodegradation. Working soil in the treatment cell with a rototiller, disc, plow, or windrow equipment will increase oxygen availability. The optimum oxygen range in soil for bioactivity is 4 to 5 percent.
pH	When soil is too acidic or basic, nutrients become unavailable to the microorganisms because the nutrients bind to the soil particles or because the nutrient form is altered. The optimum pH for bioactivity is 7, and pH should be kept between 6 and 8.
Temperature	Biodegradation can occur between 20 EF and 90 EF. Activity is optimal at temperatures greater than 40 EF.

3.7.1 Land Treatment Plan

The land treatment plan must be submitted to the LUST Section for preapproval at the address given in Section 3.2.3. Plans must be concise, in narrative form, and include the following information:

1. An amended LUST site investigation map showing the treatment area
2. Treatment cell illustrations that include the following:
 - a. Construction diagrams with dimensions
 - b. Cross sections with dimensions
 - c. All measurements and locations of treatment project design components (including soil depth, buffer zones, water collection, and other details)
3. Description of cell construction
4. Description of impermeable layer (at least 12 mils thick)
5. Description of berm construction (at least 6 inches above the upper soil surface layer level)
6. Water run-off and leachate collection system and associated sampling and disposal procedures
7. Local land use
8. Depth to ground water and type (perched or seasonal)
9. Proximity to ecologically susceptible areas.

The land treatment plan must also include the following treatment and activity information:

1. Initial contamination levels (field instruments can be used)
2. Soil volume to be treated
3. Tilling schedule
4. The following, as applicable:
 - a. Nutrient application rates
 - b. Moisture adjustments
 - c. pH adjustments
 - d. Bacteria additions (type, application rate, and media)
 - e. Pretreatment levels of these factors

Proper cell construction is necessary to protect the environment during the remediation process. The land treatment location should provide enough space for the soil to be spread in layers no more than 18 inches thick. It may be acceptable to design the treatment cell to accommodate several layers (lifts). However, the soil must still be treated and sampled in 18-inch-thick lifts. Room also must be allotted for berms, heavy equipment maneuvering, and contaminated water containment and treatment.

The seasonal high water table for the treatment location should be determined. A site that is dry in summer may pond with water for several months in the spring. The treatment cell must be kept out of drainage ways. Even small drainage ways can channel a large amount of unnecessary water into the treatment cell, requiring containment and treatment.

Adjacent land use must also be considered. For example, site access must be controlled, especially if the site is located in a populated area.

3.7.2 Off-Site Land Treatment

The off-site treatment of contaminated soil is allowed only when the owner of the LUST site is also the owner of the proposed treatment property. In addition to complying with the previously discussed land treatment guidance, the following requirements must be met for offsite treatment.

Off-Site Land Treatment Information

1. LUST site information must include the following:
 - a. Owner or operator name
 - b. Site name
 - c. Site address
 - d. Telephone number
 - e. LUST incident and UST facility number
2. Off-site information must include the following:
 - a. Copy of deed or title
 - b. Legal description of property

Maps and Illustrations of the Off-Site Property

1. Illustrated legends and compass directions at an appropriate scale
2. A legible topographic base with 10-foot intervals
3. Location and depth of all private wells within a 1-mile radius of the site property
4. Surface water bodies within a 1-mile radius of the site property
5. Soil Conservation Service soil map and descriptions
6. Proximity to sensitive populations and environmentally susceptible areas (such as schools, woodlands, and wetlands)

Transportation

The guidelines below must be met during the transportation of the contaminated soil. In addition, IDEM requires that the information below concerning the logistics of the transportation also be provided.

1. The load must be covered by a tarpaulin to prevent rainwater infiltration, blowing of material, and other dispersion
2. Hauler information (bill of lading)
 - a. Name of company
 - b. Business address
 - c. Telephone number
 - d. Driver's name and commercial driver's license number
3. Total amount of soil to be transported (in tons or cubic yards)
4. Initial COC concentrations
5. Date and time of transportation

IDEM will respond in writing within 14 days of receipt of a written off-site treatment request. The letter will either approve or deny the request, or ask for additional information. Transportation cannot begin prior to receipt of written approval from IDEM. A copy of the approval letter must be maintained at both the LUST site and the off site treatment property. The treatment process can begin upon receipt of the approval letter.

If off-site land treatment is utilized for an UST over-excavation closure, the UST closure report must include the Corrective Action Progress Report (see [Appendix 3.4](#)), and the Remediation Progress Report (see [Appendix 1.3](#)).

The off-site treatment process must be maintained until soil contaminant concentrations are at or below residential closure levels. Use of nondefault closure levels may be possible. If treatment ceases prior to attaining closure levels or monitoring and reporting requirements are not met for any reason, the LUST Section will refer the site to IDEM's Office of Enforcement for enforcement action for illegally disposing of special waste.

Local fire and health departments should be notified regarding contaminated soil transportation and the proposed off-site land treatment. The use of off-site property for land treatment of petroleum-contaminated soil should not violate any local zoning laws or covenants, nor should it be inconsistent with any third-party agreements.

3.7.3 Land Treatment Field Sampling

IDEM's two main concerns regarding land treatment are that the contaminated soil has been remediated and that the treatment location has not been contaminated during the treatment process. Field sampling is intended to accomplish these goals. Field sampling plans for land treatment must include the following information:

- Schedule for field sampling events
- Location of site to be sampled
- Procedures for sampling
- Equipment to be used

Field instruments can be used to determine initial contaminant levels and for quarterly monitoring. While field instruments are not as accurate as laboratory analysis, they save time and money while providing an estimate of the level of contamination.

In order to allow comparison of quarterly monitoring results, it is best to use the same type of field screening instrument throughout the remediation process. Field instruments should always be calibrated before use. The number of field samples for monitoring purposes must be double the number required for final confirmatory sampling. Field samples should not be composited.

3.7.4 Land Treatment Progress Reporting

Corrective Action Progress Reports must be submitted quarterly throughout the remediation process. These reports must include sampling results and a summary of actions completed during the quarter. At the end of the project, a remediation completion report must be filed to document that that cleanup has been achieved.

- Brief narrative of the remediation process
- Data from the performance monitoring plan graphically displayed to show remediation effectiveness
- Other documentation to support conclusions

All reports must be signed by an experienced environmental professional (such as an engineer, geologist, hydrogeologist, or Certified Hazardous Materials Manager [CHMM]).

3.7.5 Land Treatment Confirmation Sampling

Soil samples must be collected and submitted to a laboratory for analysis to confirm that contaminated soil has been remediated. Sampling plans are necessary for confirmation sampling and must include the following information:

- Schedule for field sampling events
- Location of samples (field and confirmational)
- Sampling procedures to be used
- Laboratory methods
- Chain-of-custody procedures
- QA/QC procedures

The COCs for land treatment are the petroleum COCs presented in Appendix 4.1. Soil samples should not be composited and sampling patterns must be designed to reduce bias and provide complete site coverage. Random sampling procedures, such as grid patterns, are best suited for accomplishing these goals. Sampling locations should be in the bottom third of the contaminated soil layer. Table 3-2 below should be used to determine the necessary number of samples required.

Table 3-2. Land Treatment Confirmatory Soil Sampling

Cubic Yards of Soil Treated	No. of Treatment Cell Samples	No. of Underlying Samples
0 - 10	1	1
11 - 100	2	1
101 - 500	3	1
501 - 1000	4	2
Each additional 500	1	1

Once confirmation sampling indicates that COC levels are at or below land use-specific closure levels at all sampling locations, the soil can be considered remediated. If commercial/industrial closure levels are used, the soil must remain on site. For off-site land treatment, residential closure levels are required.

To establish that the treatment cell location has not been contaminated by the remediation process, soil underlying the impermeable layer must be sampled and analyzed. As with the confirmation sampling, the COCs for analysis are the petroleum COCs listed in [Appendix 4.1](#).

3.8 Quarterly Reporting

Quarterly reporting tracks the remedial progress of sites through the final site report. A quarterly report must be submitted for the following situations:

- Acute hazards (presence of free product, vapor intrusion, or drinking water impact)
- Active remediation projects
- Quarterly ground water sampling for plume stability or petroleum attenuation

For soil, the following active remediation options require quarterly reporting:

- Land treatment
- Soil vapor extraction
- Air sparging
- Landfilling
- Bioremediation

For ground water, the following active remediation options require quarterly reporting:

- Pumping and treatment
- Monitored natural attenuation

The quarterly report should include both the information in the [Remediation Progress Report](#) form (see [Appendix 1.3](#) of this User's Guide) and a completed [Corrective Action Progress Report form](#) (see [Appendix 3.4](#) of this User's Guide). These reports should be submitted to the address given in Section 3.2.3. For sites closing with institutional controls, a RISC plume stability demonstration is required in addition to the reporting requirements discussed above.

The LUST Section has changed the quarterly report time frames. The following schedule for quarterly sampling and reporting should be used:

Quarter 1	January 1 - March 31	Report due April 30
Quarter 2	April 1 - June 30	Report due July 31
Quarter 3	July 1 - September 30	Report due October 31
Quarter 4	October 1 - December 31	Report due January 31

A new CAP Progress Report form is available for download at the LUST web site at:

<http://www.state.in.us/idem/olq/programs/lust/index.html>

3.9 Supplemental Information

Additional LUST guidance can be obtained by contacting the LUST Section at the following Internet links:

- Indiana Code (IC) 13-23-13, Corrective Actions:
<http://www.state.in.us/legislative/ic/code/title13/ar23/ch13.html>
- 329 Indiana Administrative Code (IAC), Article 9, USTs:
<http://www.state.in.us/legislative/iac/title329.html>
- LUST web site:
<http://www.state.in.us/idem/olq/programs/lust/index.html>
- Indiana Department of Natural Resources Water Well Record Database:
<http://www.state.in.us/dnr/water/wellwater/index.html>
- IDEM Special Waste Information:
http://www.state.in.us/idem/olq/special_topics/special_waste/index.html

- IDEM UST Section Guidance:

http://www.state.in.us/idem/olq/about_olq/programs.html#ust
- IDEM Geological Services Section, Technology Evaluation Documents:

<http://www.state.in.us/idem/olq/programs/geoserv/index.html>

3.10 ELTF Guidance

The ELTF is administered by the Excess Liability Trust Fund (ELTF) Program and was created under IC 13-23-7 through 9 (previously IC 13-7-20) to provide the following:

- A method to reimburse eligible tank owners for LUST cleanup costs and any third-party liability costs
- A method to help tank owners fulfill federally required financial assurance requirements
- A method to guarantee loans for tank owners who wish to upgrade their present systems but are unable to obtain financing

UST owners who want to make claims to the ELTF need to be aware of eligibility requirements. These requirements have changed since the original statute was passed and are summarized below.

- All regulated USTs must have been registered with IDEM at the time of the discovery of the release. If unregistered tanks are present, a percentage-based reimbursement will be made depending on the number of tank fee payments that have been missed.
- All tank registration fees must be current. If tank fee payments have been missed, a percentage-based reimbursement will be made depending on the number of tank fee payments that have been missed. If less than 50 percent of the payments have been made, the claim will be deemed completely ineligible. The formula for reimbursement for owners and operators who have failed to pay tank fees due under IC 13-23-12-1 is available in [328 IAC 1-3-3\(b\)](#).
- Any release from the UST system must be reported to IDEM and have an incident number assigned.

- A CAP for remediation of the site must have been approved in writing by IDEM or have been deemed approved in accordance with [IC 13-23-8-4](#).
- The UST owner or operator must have been in compliance with all applicable federal and State laws and regulations governing USTs by the date the requirements became effective.
- The UST owner or operator has not defaulted on a loan with the loan guaranty program.
- The deductible specified in [IC 13-23-8](#) has been paid.

Additional ELTF guidance is available in 328 IAC, UST Financial Assurance Board, at the following Internet address:

<http://www.state.in.us/legislative/iac/title328.html>

Additional information relating to activities involved with the site remediation process can be obtained by sending a letter to the address below or calling (317) 234-0990.

Leaking Underground Storage Tank Section
Indiana Department of Environmental Management
100 North Senate Avenue
P.O. Box 7015
Indianapolis, IN 46206-7015

Appendix 5 provides an ELF and RISC Fact Sheet (see Appendix 5.1) and an ELF/RISC Nonrule Policy Document (see Appendix 5.2). These documents provide more information on ELTF eligibility.

The following subsections discuss deductibles, examples of eligible expenses, examples of ineligible expenses, and instructions for application for ELTF eligibility. Application packages are available by calling (317) 234-0990.

3.10.1 Deductibles

The deductible for petroleum UST involved in an incident for which a claim is made is \$35,000 if the conditions below apply.

- The UST is NOT in compliance with U.S. EPA regulations, rules adopted by the Solid Waste Management Board, and rules adopted by the Fire Prevention and Building Safety Commission concerning technical requirements relating to the

specifications for petroleum USTs before the date the tank is required to be in compliance.

- The UST is in compliance with the regulations and rules above on a date required in [IC 13-23-8-4](#) at the time the release was discovered.

The deductible for a petroleum UST involved in an incident for which a claim is made is \$30,000 if the conditions below both apply.

- The UST is in compliance with U.S. EPA regulations, rules adopted by the Solid Waste Management Board, and rules adopted by the fire prevention and building safety commission concerning technical requirements relating to the physical characteristics of petroleum USTs before the date the tank is required to be in compliance.
- The UST is not a double-walled, steel petroleum tank with double-walled, steel piping.

The deductible for a petroleum UST involved in an incident for which a claim is made is \$25,000 if the conditions below both apply.

- The UST is in compliance with U.S. EPA regulations, rules adopted by the Solid Waste Management Board, and rules adopted by the Fire Prevention and Building Safety Commission concerning technical requirements relating to the specifications for petroleum USTs before the date the tank is required to be in compliance.
- The UST is a double-walled, steel petroleum tank with double-walled, steel piping.

If the owner or operator has 100 or fewer USTs, the owner or operator cannot receive more than \$1,000,000 minus the deductible from the ELTF per year. If the owner or operator has more than 100 USTs, the owner or operator cannot receive more than \$2,000,000 minus the deductible per year from the ELTF. The maximum amount allowed per occurrence is \$1,000,000 minus the deductible.

3.10.2 Examples of Eligible Expenses

The following partial list is provided to assist owners and operators in recognizing the types of expenses eligible for reimbursement under the ELTF program. A complete listing of reasonable costs is available in [328 IAC 1-3-5](#).

- Costs incurred after March 31, 1988
- Administrative costs such as the following:
 - Travel, lodging, and per diem costs to be paid in accordance with the most current Indiana Department of Administration financial management circular covering State travel policies and procedures
 - Attorney fees if incurred by the owner or operator in defense of litigation in a third-party liability claim
 - Sales tax and governmental administrative fees for local, State, or federal permits necessary for corrective action.
- Investigation and remediation costs, such as the following:
 - Investigation costs, including environmental assessment, field time, report writing, and clerical support
 - Costs for soil and water sampling of petroleum and petroleum constituents in accordance with IDEM guidelines
 - Expenditures for machinery and equipment²
 - Materials and supplies, such as disposable protective equipment, building materials (e.g., piping and cement), and sample preservatives
 - Provision of alternate water supply³
- Miscellaneous costs, including any other costs deemed reasonable and necessary for corrective action or payment of third-party liability claims.

² These costs must be prorated based on the normal expected life of the item and the length of time the item was used for a single corrective action. In no case will the ELTF pay for purchase of machinery and equipment in excess of the market cost of leasing the item.

³ This must be included in a CAP approved by IDEM.

3.10.3 Examples of Ineligible Expenses

The following partial list is provided to assist owners and operators in recognizing the types of expenses that are not eligible for reimbursement under the ELF program.

- Capital improvement costs, such as the following:
 - New tanks or equipment
 - Installation of new tanks or equipment
 - Bedding material for new tanks or equipment (such as pea rock, sand, or special fills used to seat or bed tanks)
 - Concrete, asphalt, or other resurfacing materials reasonably necessary for restoration but in excess of 110 percent of the total surface dimensions of the original surface material or where surface material did not previously exist
 - Property improvement
 - Higher quality surfacing than previously existed (for example, replacement of 4-inch nonreinforced concrete with 6-inch re-inforced concrete with a gravel base)
- Administrative costs such as the following:
 - Interest expenses and finance charges
 - Fines and penalties
 - Punitive or exemplary damage charges
 - Any other costs not directly related to corrective action or third-party liability or otherwise determined to not be reimbursable
 - Administrative costs and application fees paid to IDEM for participation in the Voluntary Remediation Program (VRP)
- Environmental costs such as the following:
 - Laboratory work related to

- Testing of tank contents (such as water, sludge, sand, and petroleum product) for disposal
 - Analysis using unapproved testing methods
 - Analysis of inappropriate constituents
 - Cleanup work related to
 - Removal of tank contents
 - Assessment of cleanup of any material other than gasoline, natural gas condensate, jet fuels, diesel fuels, heating fuels, kerosene, crude oils, waste oils, or mixed petroleum products
 - Excavation costs beyond the backfill area of the tank(s) as described in [328 IAC 1-3-5\(b\)\(12\)](#)
 - Costs associated with remediation that exceeds the minimum requirements to bring a site into compliance with state environmental standards
 - Other items, such as consultant “markups” on
 - General contractor expenses
 - Landfill fees
 - Travel
 - Utility bills
 - Per diem expenses
 - Equipment purchases that cannot be charged to a specific site, such as drilling rigs, earth-moving equipment, photoionization detectors, explosimeters, and hand tools.
- Miscellaneous costs such as the following:
- Business down time
 - Any increased cost of cleanup with the goal of limiting business down time
 - Damage caused by excavation equipment or any other equipment

- Contractor costs not directly related to corrective action activities, such as preparing cost estimates, preparing bids, accounting billing functions, computer use and time, and preparation of the ELTF application

3.10.4 Instructions for Application for ELTF Eligibility

The preapproval process determines whether a site is eligible to receive reimbursement and, if so, at what percentage the site will be reimbursed. The site must have an approved emergency action, site characterization, or corrective action plan before reimbursement will be made. The owner/operator must be in compliance with the eligibility requirements as outlined in 328 IAC 1-3-3. Those seeking a preapproval determination or those wishing to receive reimbursement from the ELTF should submit two completed copies of the ELTF application to the address below:

Indiana Department of Environmental Management
Excess Liability Trust Fund
100 North Senate Avenue
P.O. Box 7015
Indianapolis, IN 46206-7015

Owners and operators will be informed by letter of the status of their site's eligibility for reimbursement. Any cost(s) that are ineligible or considered unreasonable for reimbursement will be identified.